CLAIM AMENDMENTS

Please amend the claims (~~strikethrough~~ indicating deletion and underline indicating insertion) as follows:

1. (Currently Amended) A spark gap device comprising:

an integrated circuit (IC), the IC comprising:

a substrate;

a cathode element disposed on the substrate, the cathode element comprising a conductive material; and

an anode element disposed on the substrate electrically isolated from the cathode element, the anode element comprising a conductive material, the anode and cathode elements being separated from each other by a spark gap;

a capacitor that stores an electrical charge, the electrical charge stored on the capacitor exerting an electric field over the cathode and anode elements; and

a trigger electrode capable of being actuated~~, wherein when the trigger electrode is actuated, a spark occurs in the gap of the spark gap device~~;

a dielectric layer covering at least portions of each of the cathode element, the anode element, the trigger electrode, and the spark gap, wherein when the trigger electrode is actuated, an electrical current passes through the trigger electrode causing at least partial vaporization of the trigger electrode, said at least partial vaporization of the trigger electrode causing a plasma gas to be released that moves a portion of said dielectric layer away from the spark gap to allow ions to flow across the spark gap between the cathode element and the anode element.

2. (Original) The spark gap device of claim 1, wherein the substrate is a ceramic material.

3. (Original) The spark gap device of claim 1, wherein when the trigger electrode is actuated, a voltage differential between the cathode element and the anode element is approximately 300 volts or greater.

4. (Original) The spark gap device of claim 1, wherein the trigger electrode includes an electrode electrically isolated from the cathode and anode elements and substrate, wherein the trigger electrode is actuated by creating a voltage differential between the electrode and the cathode element.

5. (Original) The spark gap device of claim 1, wherein the trigger electrode is electrically coupled to a secondary side of a step-up transformer, the secondary side comprising a coil that is electrically isolated from the cathode element, anode element and substrate.

6. (Original) The spark gap device of claim 1, wherein the trigger electrode is electrically coupled to a transistor, and wherein the trigger electrode is actuated by applying a voltage to a gate of the transistor.

7. (Original) The spark gap device of claim 1, wherein the spark gap device is a high-voltage switch for use as an electrostatic discharge (ESD) device in a computer system.

8. (Original) The spark gap device of claim 1, further comprising:

a slapper device formed on the IC, the slapper device being electrically connected in series with the spark gap device, the slapper device comprising:

a cathode element disposed on the substrate, the cathode element of the slapper device comprising a conductive material;

an anode element disposed on the substrate electrically isolated from the cathode element of the slapper device, the anode element of the slapper device comprising a conductive material;

a conductive bridge interconnecting the cathode element of the slapper device and the anode element of the slapper device; and

a flyer element positioned to receive energy transferred from the conductive bridge of the slapper device to the flyer element, wherein when the trigger element of the spark gap device is actuated, current flows through the conductive bridge of the slapper device thereby causing energy to be transferred from the conductive bridge of the slapper device to the flyer element, the energy transferred to the flyer element imparting motion to the flyer element in a direction away from the substrate.

9. (Original) The spark gap device of claim 8, wherein the IC is used in an explosive as an initiator, wherein the motion of the flyer device imparts energy to an explosive material in the explosive to cause the explosive material to detonate.

10. (Currently Amended) An explosive apparatus comprising:

a spark gap device, the spark gap device comprising:

an integrated circuit (IC), the IC comprising:

a substrate;

a cathode element disposed on the substrate, the cathode element comprising a conductive material; and

an anode element disposed on the substrate electrically isolated from the cathode element, the anode element comprising a conductive material;

a capacitor capable of storing a large electrical charge; and

a trigger capable of being actuated~~; wherein when the trigger is actuated current flows between the cathode and anode elements and generates a spark in the spark gap device~~

a dielectric layer covering at least portions of each of the cathode element, the anode element, the trigger electrode, and the spark gap, wherein when the trigger electrode is actuated, an electrical current passes through the trigger electrode causing at least partial vaporization of the trigger electrode, said at least partial vaporization of the trigger electrode causing a plasma gas to be released that moves a portion of said dielectric layer away from the spark gap to allow ions to flow across the spark gap between the cathode element and the anode element; and

an explosive material that is detonated when the trigger is actuated.

11. (Original) The explosive apparatus of claim 10, wherein the substrate is a ceramic material.

12. (Original) The explosive apparatus of claim 10, wherein when the trigger is actuated, the voltage differential between the cathode element and the anode element is at least equal to or greater than approximately 300 volts.

13. (Original) The explosive apparatus of claim 10, wherein the trigger includes an electrode electrically isolated from the cathode element, anode element and substrate.

14. (Original) The explosive apparatus claim 10, wherein the trigger includes a secondary side of a step-up transformer electrically coupled to a trigger electrode.

15. (Original) The explosive apparatus of claim 10, wherein the trigger includes a transistor electrically coupled to an electrode.

16. (Original) The explosive apparatus of claim 10, further comprising:

a slapper device, the slapper device being electrically connected in series with the spark gap device, the slapper device comprising:

a cathode element disposed on the substrate, the cathode element of the slapper device comprising a conductive material;

an anode element disposed on the substrate electrically isolated from the cathode element of the slapper device, the anode element of the slapper device comprising a conductive material;

a conductive bridge interconnecting the cathode element of the slapper device and the anode element of the slapper device; and

a flyer element positioned to receive energy transferred from the conductive bridge of the slapper device to the flyer element, wherein when the trigger of the spark gap device, current flows through the conductive bridge of the slapper device thereby causing energy to be transferred from the conductive bridge of the slapper device to the flyer element, the energy transferred to the flyer element imparting motion to the flyer element in a direction away from the substrate to cause the flyer element to contact the explosive material, wherein the contact between the flyer element and the explosive material causes the explosive material to detonate.

17. (Original) A method for generating a spark, the method comprising:

integrally forming a high-voltage switch on a substrate of an integrated circuit, the high-voltage switch comprising an anode element disposed on the substrate and a cathode element disposed on the substrate, the anode and cathode elements being electrically isolated from each other and separated from each other by a spark gap;

integrally forming an explosive device of the substrate, the explosive device comprising an anode element, a cathode element and a conductive bridge element that connects the anode and cathode elements of the explosive device together; and

triggering the high-voltage switch to cause a spark to be created in the spark gap, wherein when the spark is created in the spark gap, current flows through the conductive bridge of the explosive device thereby causing the explosive device to detonate.